

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference S3174 GC/nen	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2004/007428	International filing date (day/month/year) 07.07.2004	Priority date (day/month/year) 11.07.2003
International Patent Classification (IPC) or national classification and IPC H03M1/68		
Applicant INFINEON TECHNOLOGIES AG		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4.	This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
 - ☐ international search (Rule 12.3 and 23.1(b))
 - ☐ publication of the international application (Rule 12.4)
 - ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
 - ☐ the international application as originally filed/furnished
 - ☒ the description:
 - pages 1-13 _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☒ the claims:
 - nos. _____ as originally filed/furnished
 - nos.* 1-9 _____ as amended (together with any statement) under Article 19
 - nos.* _____ received by this Authority on _____
 - nos.* _____ received by this Authority on _____
 - ☒ the drawings:
 - sheets 1/5-5/5 _____ as originally filed/furnished
 - sheets* _____ received by this Authority on _____
 - sheets* _____ received by this Authority on _____
 - ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages _____
 - ☐ the claims, nos. _____
 - ☐ the drawings, sheets/figs _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages _____
 - ☐ the claims, nos. _____
 - ☐ the drawings, sheets/figs _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-9	YES
	Claims	NO
Inventive step (IS)	Claims	YES
	Claims 1-9	NO
Industrial applicability (IA)	Claims 1-9	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

1. Reference is made to the following document:

D1: US 6,456,218

2. The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claim 1 does not involve an inventive step (PCT Article 33(3)).

Document D1 is considered the prior art closest to the subject matter of claim 1.

D1 discloses a digital-to-analogue converter comprising:

a field arrangement consisting of a number of cells between a first and a last cell (figure 5, 2₁ to 2_n), for outputting at least one quantised analogue signal (figure 5, I_A and I_B) as a function of the triggering signals;

a DEM logic arrangement (abstract, "segment rotation") [for generating digital output data]

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from digital input data (figure 5, D1-Dm) according to a predetermined algorithm whilst determining a start cell and an end cell in the field arrangement (figure 6, IT1 to ITn), between which cells with power sources to be activated lie;

a decoding arrangement (16) for decoding the digital output data (figure 5, D1-Dm) from the DEM arrangement ("segment rotation section"), to form triggering signals (OT1 -OTn) for activating the cells to be activated (2_1 to 2_n).

The subject matter of claim 1 thus differs from that known from D1 in that:

- a) the arrangement of the power sources forms a two-dimensional field;
- b) a qualifying signal is formed which shows the field arrangement from the last to the first cell.

The present invention can therefore be considered to address the problem of improving the structure of the converter when using a plurality of power sources.

Point a)

The solution proposed in claim 1 of the present application cannot be considered inventive (PCT Article 33(3)) for the following reasons: D1 discloses a solution for use with a converter

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having a plurality of power sources (figure 3 and column 2, lines 14-48). D1 shows, in principle, the use of DEM in a one-dimensional field. It would have been obvious for a person skilled in the art to transfer the DEM converter from figure 5 to the structure in figure 3. D1 shows both an embodiment with a high resolution as a result of DEM and a converter with a large number of power sources. The two technical problems addressed and the solutions thereto are mutually independent and can obviously each be individually integrated into the converter according to D1.

Point b)

D1 discloses a DEM logic arrangement in which the cells are activated via a "shifter". The cells are counted cyclically ("wrapping around", column 11, lines 20-24), the subsequent carry not being taken into consideration (a similar example is provided in D1, column 26, lines 45-48). The carry would be used to determine whether the last cell in the field arrangement has been reached. It is not, however, considered inventive to indicate how such a signal is merely interpreted, as in the claim.

The subject matter of claim 1 therefore fails to involve an inventive step (PCT Article 33(3)).

3. Dependent claims 2-9 do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT

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requirements for inventive step.